National Climatic Data Center

DATA DOCUMENTATION

FOR

DATASET 3300-3392 (DSI-33xx)

Inventory for 32xx Series

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1. Abstract: The 33xx series is an inventory of the 32xx datasets. For daily and hourly data each record contains one year of inventory information for a particular data element of a particular data type. For monthly data each record contains one decade of inventory information.

Although the datasets in the 32xx family share some things in common, there are also many significant differences. These differences are called "characteristics" and are defined for each dataset. The significant areas of differences are:

1) Some datasets have totals at the end of certain records. These data portions are not to be counted.
2) Some datasets contain compression flags that indicate a run of values that has been suppressed to save space. These are specifically noted by the use of certain flags.
3) All the datasets have time gaps. There are two ways to interpret this based on the individual dataset:
   A) The values are actually missing.
   B) The values are present, but no special flags indicate this run.)
4) Some of the datasets identify stations by co-op number and others by WBAN number.
5) Each dataset also has its layer of granularity. This refers to the time level to which the data portions go. For example, in 3300, the data portions are at the daily level (have daily granularity).
6) Overflow records exist for some elements that can contain more data than can be stored in one record. Subsequent records are used to store the additional data values. (See the definition of overflow records below.)

Overflow records - Several of the elements for some of the datasets have the potential of possessing more data than can be held in the five digit number required by the format. In such cases, the "overflow" data is carried over to subsequent records. For example, in 3280, PRTH (Present weather) can contain codes for light snow, light freezing rain, ice fog, and blowing snow all within the space of an hour's time. Because each weather event is encoded as a two digit number, only two events can be stored in the five digits allotted. Therefore additional record(s) with the same identification portion is/are created and the remaining weather event(s) for that hour are stored in additional data portion(s).

Note: The user of the flag pair counts for these specific overflow capable elements that exceed the expected maximum value even after filtering out bad values that have subsequent replacements. For example, in 3200 with DYSW, a value greater than 31 days for a month can be achieved by summing up all the flag counts for "good" data (i.e., where the quality flag is not "2" or "3").

2. Element Names and Definitions:

3300 & 3306
Cooperative SOD
Record Format

Characteristics:
1) No total values. All the element flag pair instances are to be counted without exception.

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2) There is compression in the PRCP and SNOW accumulation runs. Currently, when a data portion contains an “A” or a “B” in the measurement flag and there is a gap in the time either fro the beginning of that month or since the prior data portion, then the ghost data values are supplied for the inventory process.
3) A gap in time is considered to be truly missing. (Except for accumulation periods in PRCP and SNOW records. See #2 above.)
4) Co-op number is used as station identifier.
5) Data granularity: Daily.
6) Overflow records: DYSW.

Example:
SS,CCCC,YYYY,MM,HH,EEEE,1,2,999

Fields:
SS = State number
CCCC = Co-op station id
YYYY = Year
MM = Month
HH = Hour of observation
EEEE = Element code
1 = Flag #1 (measurement) value
2 = Flag #2 (quality) value
999 = Pair count (zero-padded on the left)

Note: In some cases (e.g., overflow records for DYSW), there are binary zero values (00 hex) in the quality flag positions in the original data. (These null characters also show up at times in the division number, but this is adjusted by the 32xxFPI program.) Because C interprets these null characters as string termination, the flag #2 positions is treated as empty. The 32xx FPI program deals with this by checking both flag values and replacing any nulls found there with an ‘at’ symbol (@). It is recommended that any import of this inventory into a database account for these asterisks in the flags and translate them back to nulls (if the database supports null fields). Either way these null characters can be easily pin-pointed for future renovation of the 3200 data.

3310
First Order - SOD
Record Format

Characteristics:
1) There are no total values.
2) Compression exists for accumulation periods for elements PRCP, SNOW, and SNWD. In some cases, it is impossible to tell whether or not an “A” or “B” value in the measurement flag ends an accumulation for one day or for a series of days when there are no “S” values preceding it. The rule of thumb of this situation is that any “A” or “B” encountered is considered to be the end of an accumulation for any preceding days that are missing in the record. Because these ghost values are counted separately as “A!” or “B!” pairs, they can be factored in or out of any statistics that might be run in the future by using metadata to decide which stations these apply for and which don’t.
3) A gap in time (i.e., between days) is considered to be truly missing. (Except for accumulation periods in PRCP, SNOW, and SNWD records. See #2 above.)
4) WBAN number in used as station identifier.

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5) Data Granularity: Daily.
6) Overflow records: DYSW.

Example:
WWWWW,YYYY,MM,DD,EEEE,1,2,999

Fields:
WWWWW = WBAN station id
YYYY = Year
MM = Month
DD = Day of observation
EEEE = Element code
1 = Flag #1 (measurement) value
2 = Flag #2 (quality) value
999 = pair count (zero-padded on the left)

3320
Cooperative - SOM
Record Format

Characteristics:
1) There are no total values. These are indicated by a month “13”.
2) No compression flags.
3) A gap in time (i.e., between days) is considered to be truly missing.
4) Co-op number is used as station identifier.
5) Data Granularity: Monthly.
6) Overflow records: None.

Example:
SS,CCCC,YYYY,EEEE,1,2,999

Fields:
SS = State number
CCCC = Co-op station id
YYYY = Year
EEEE = Element code
1 = Flag #1 (measurement) value
2 = Flag #2 (quality) value
999 = Pair count (zero-padded on the left)

3340 & 3341
Hourly Precipitation &
Hourly Precip Data (Special ASOS Network)
Record Format

Characteristics:
1) There are no total values. These are indicated by an hour value of “2500”.
2) There are compression flags. Specifically, ‘[,ß’ and ‘]ß’ indicate a missing range. ‘[,ß’ and ‘]ß’ indicate a deleted range. ‘aß’ and ‘Aß’ indicate an accumulation period. The occurrences of these flag pairs are counted independently of each other. Also note that the ghost values that are encompassed between the start and end f the ranges are counted separately with their own flag pairs as follows: ‘M!’ for missing, ‘D!’ for deleted, and ‘A!’ for accumulation.
3) A gap in time (i.e., between hours) is considered to be observed, but for

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compression purposes it is understood to be a run of zero values.
4) Co-op number is used as station identifier.
5) Data Granularity: Hourly. (01:00 - 24:00)
6) Overflow records: None.

Example:
SS,CCCC,YYYY,MM,DD,EEEE,1,2,999

Fields:
SS = State number
CCCC = Co-op station id
YYYY = Year
MM = Month
DD = Day
EEEE = Element code
1 = Flag #1 (measurement) value
2 = Flag #2 (quality) value
999 = Pair count (zero-padded on the left)

Note: There is a flag pair consisting of ‘,ß’. This can present a problem for an import routine that is expecting the inventory file to be comma delimited. Because double quotes are not used to indicate empty fields, the fields starting with flag 1 could be wrongly interpreted as empty. This is not the case. **None of the fields in this data file should ever be empty.** It is suggested that the import program be set to look for fields in fixed positions.

3360
15 - Min Precip
Record Format

Characteristics:
(See characteristics for 3240 for more information.)
1) There are no total values. These are indicated by an hour value of “2500”.
2) There are no compression flags. Specifically ‘[,ß’ and ‘]ß’ indicate a missing range. ‘[,ß’ and ‘]ß’ indicate a deleted range. ‘aß’ and ‘Aß’ indicate an accumulation period.
3) A gap in time (i.e., between quarter hours) is considered to be observed, but for compression purposes it is understood to be a run of zero values.
4) Co-op number is used as station identifier.
5) Data Granularity: Quarter hourly (every 15 minutes). (00:15 - 24:00)
6) Overflow records: None.

Example:
SS,CCCC,YYYY,MM,DD,EEEE,1,2,999

Fields:
SS = State number
CCCC = Co-op station id
YYYY = Year
MM = Month
DD = Day
EEEE = Element code
1 = Flag #1 (measurement) value
2 = Flag #2 (quality) value

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999 = Pair count (zero-padded on the left)

Note: There is a flag pair consisting of ‘,ß’. This can present a problem for an import routine that is expecting the inventory file to be coma delimited. **None of the fields in this data file should ever be empty.** See note for 3240 for more information.

3380
Surface Airways Hourly
Record Format

Characteristics:
1) There are no total values.
2) No compression flags.
3) A gap in time (i.e., between hours) is considered to be missing.
4) WBAN number is used as station identifier.
5) Data Granularity: Hourly. (00:00 - 23:00)
6) Overflow records: PWTH and PWVC.

Example:
WWWWW,YYYY,MM,DD,HH,EEEE,1,2,999

Fields:
WWWWW = WBAN station id
YYYY = Year
MM = Month
DD = Day
HH = Observation hour
EEEE = Element code
1 = Flag #1 (measurement) value
2 = Flag #2 (quality) value
999 = Pair count (zero-padded on the left)

3390
Surface 6-Hourly
Record Format

Characteristics:
1) There are no total values
2) There are accumulation runs for the PRCP element. When ‘A’ values are encountered in the measurement flag position, any missing 60-hour periods are assumed to be part of the accumulation indicator (see #2 above) is considered to be missing.
4) WBAN number is used as station identifier.
5) Data Granularity: Six hour “synoptic” periods.
6) Overflow records: None.

Example:
WWWWW,YYYY,MM,DD,HH,EEEE,1,2,999

Fields:
WWWWW = WBAN station id
YYYY = Year
MM = Month
DD = Day

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HH = Observation hour
EEEE = Element code
1 = Flag #1 (measurement) value
2 = Flag #2 (quality) value
999 = Pair count (zero-padded on the left)

3392
Weather Duration
Record Format

Characteristics:
1) There are no total values.
2) No compression flags.
3) Gaps in time (i.e., between time ranges for the current day and missing days) are considered to be missing.
4) WBAN number is used as station identifier.
5) Data Granularity: Ranges of time to the minute level.
6) Overflow records: None. Each record contains up to 100 time ranges of weather events for a single day.

Example:
WWWWW,YYY,MM,DD,EEEE,1,2,999

Fields:
WWWWW = WBAN station id
YYYY = Year
MM = Month
DD = Day
EEEE = Element code
1 = Flag #1 (measurement) value
2 = Flag #2 (quality) code
999 = Pair count (zero-padded on the left)

3. Start Date: 19580501

4. Stop Date: 19891231

5. Coverage:

a. Southernmost Latitude: -90.0S
b. Northernmost Latitude: 90.0N
c. Westernmost Longitude: -180.0W
d. Easternmost Longitude: 180.0E

6. How to Order Data:

Ask NCDC's Climate Services about the cost of obtaining this data set.
Phone: 828-271-4800
FAX: 828-271-4876
E-mail: **NCDC.Orders@noaa.gov**

7. Archiving Data Center:

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Archive Branch
National Climatic Data Center
151 Patton Avenue
Asheville, NC 28801

8. Technical Contact:

National Climatic Data Center
151 Patton Avenue
Asheville, NC 28801

9. Known Uncorrected Problems: None.

10. Quality Statement:

11. Essential Companion Datasets:

12. References:

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